Running head: ANIMAL RESUSCITATION PROGRAM

Leading Community Risk Reduction

Companion Animal Resuscitation Program

David E. Bailey

Chesterfield Fire and Emergency Medical Services, Chesterfield, Virginia

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CERTIFICATION STATEMENT

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

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Abstract

This applied research project addressed a problem that existed in the Chesterfield Fire and Emergency Medical Services (CFEMS) Department of Chesterfield Virginia. This department frequently becomes involved in animal resuscitation but had not developed and implemented a program to legitimize and guide such actions. The purpose of this applied research project was to develop a program for the CFEMS Department that addresses the rescue and resuscitation of citizens' pets. The descriptive research method was utilized for this project.

Five research questions were addressed during the project. These questions included: (a) Does the CFEMS Department have the ethical and legal authority to resuscitate animals? (b) How have other fire departments handled this issue? (c) What elements should be included in official policy or protocol? (d) What equipment and (e) what training needs to be provided in order to create an effective program?

The Saint Francis Humane Association donated six animal oxygen masks kits to the CFEMS Department. A literature review and law review was conducted to answer the first research question and part of the third question. Questionnaires and personal interviews were used to gather original information related to the remaining research questions.

Results of the research showed that hundreds of fire departments in the United States and Canada now have oxygen masks for the resuscitation of animals, however many have made no effort to guide their members in animal resuscitation. A Use, Maintenance, and Care sheet was developed for the oxygen mask kits, and an EMS protocol was developed for the resuscitation of animals. Both of these documents were officially adopted by the CFEMS Department to help guide member actions. It is recommended that training on animal resuscitation should be conducted for all CFEMS Department members.

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Introduction

Over the years, the Chesterfield Fire and Emergency Medical Services (CFEMS) Department has had many opportunities to rescue animals from various dilemmas. To this point the CFEMS Department has given very little guidance to its members, faced with these opportunities, which will help incident commanders make good decisions. Specifically, the problem of study for this research is that the CFEMS Department frequently becomes involved in animal resuscitation but has not developed and implemented a program to legitimize and guide such actions. The purpose of this applied research project is to develop a program for the CFEMS Department that addresses the resuscitation of citizen's pets. "A pet or companion animal is an animal kept for companionship and enjoyment, as opposed to livestock, laboratory animals, working animals or sport animals, which are kept for economic reasons" (Wikipedia the free encyclopedia, 2008). These are the most frequent animals that are encountered in need by members of this department. This research project will utilize the descriptive research method. The design will include questionnaires and personal interviews to address the research questions determined to be necessary for the study.

Determining the answer to several research questions is necessary in order to determine the best program for the CFEMS Department. These questions include: (a) Does the CFEMS Department have the ethical and legal authority to resuscitate animals? (b) How have other fire departments handled this issue? (c) What elements should be included in official policy or protocol? (d) What equipment and (e) what training needs to be provided in order to create an effective program?

Background and Significance

The CFEMS Department philosophy is to help its citizens and visitors in any reasonable way. The department has high expectations that all members will act within reason to assist the public with any problems they have. As examples, members are mandated when in department vehicles to stop and render aid to all citizens with car trouble. Members also are encouraged to take care of family members that are affected by emergencies. This includes meeting needs caused by the damage of dwellings from fire, flood, storms, etc, as well as helping people to get into locked cars and locked houses. The CFEMS Department philosophy goes so deep in citizen/visitor assistance that infrequently they have to work with private service providers that are concerned about losing business. Agreements are made with these service providers to ensure the public need is met. At any time a citizen/visitor need is identified, CFEMS members are obligated to help them. This often occurs at medical calls for service when it is identified that the family is very upset. At these incidents, once the ambulance is enroute with a patient to the hospital, another CFEMS member will often drive the family member(s) to the hospital in the family vehicle.

It is also evident that pets are extremely important to our citizens. Growth of the pet products industry and animal welfare organizations provide evidence to this. In fact, many people consider their pets to be family members. This is understandable as almost 60% of households include an animal while only one in three includes a child (Religion Newswriters, 2003). Over the years, this has been demonstrated during disasters that have occurred in Chesterfield and around the country. This reality has led the federal government to require jurisdictions to plan for pets during disasters (Whitehouse News & Policies, 2006). In the past few years, members of the CFEMS Department have encountered animals in need. Most of

these cases have involved pets of citizens. Some of the many incidents include the rescue of a cat that was stuck inside a chimney, the rescue of a cat stuck inside a storm drain underground pipe, the rescue of puppies stuck in a storm drain, the rescue of an iguana lizard from a tree, the rescue of an exotic bird from a tree, and the rescue of several pets from house fires.

In several of these cases, once removed from the hostile environment, the animal has been found to be either in respiratory distress or respiratory arrest. With these cases, rescuers have often attempted some form of resuscitative efforts. To this point however rescuers have been limited by a lack of direction and a lack of training and equipment. This has resulted in inconsistency and a lack of effectiveness. At one recent house fire dogs in respiratory arrest were not even removed from the house. At other similar scenes, rescuers have removed dogs and cats and performed CPR with mouth to snout ventilations. At one fire, in the fall of 2007, a resident lost her home and all belongings and the only thing she had to comment on was how much she appreciated the great efforts members of the CFEMS Department took trying to revive her pets. On Christmas morning of 2005, a fire consumed the second floor of a house in Chesterfield. Two dogs were removed from the house during the fire attack. One of the two dogs, Zeus, was revived once he was removed from the house. The house owners were interviewed by the news media, and for several days follow up stories of that dog and his rescue filled the papers and the news broadcasts. Zeus's rescue was the hit story of Christmas that year in central Virginia.

Adding to the inconsistencies is the question of transportation of live injured animals once removed from dangerous situations. In many past incidents CFEMS members have been able to simply turn the animal over to owners that were capable of transporting the animal to veterinarian offices. In other incidents members have had to wait for the county Animal Control

Department to arrive and pick up an animal. In Zeus's case, an ambulance transported Zeus and his owner to an emergency veterinarian office a few miles from the fire scene. The ambulance transported without red lights and siren. This use of an ambulance was questioned later. Some speculated that transporting an animal may be against the Commonwealth's Office of Emergency Medical Services protocols.

CFEMS Department members will continue to face these situations as the county continues to rapidly add households. As of January 2007, Chesterfield County had a population of 311,000. These people live in 117,471 households with more than 30,000 more approved new homes to be built in the next few years (Chesterfield Planning Department, 2008). Assuming that Chesterfield households are statistically similar to the rest of the country, in 2007, 112,271 households included 79,633 dogs and 98,276 households included 206,380 cats (U.S. Census Bureau, 2008). If the pet population increases proportionally with the new homes being built, Chesterfield will see an additional 17,328 dogs and 19,908 cats in the next few years.

This topic relates directly to the content of The National Fire Academy's Executive Fire Officer Program course titled Leading Community Risk Reduction. The most direct relation to the course is found in both the preparedness and response phases of emergency management. This paper is targeting to prepare the CFEMS Department to handle animals during emergency incidents and to provide timely services to pets and their owners. If departmental improvement is achieved this process will also address one of the United States Fire Administration's Operational Objectives as it will "appropriately respond in a timely manner to an emergent issue" (United States Fire Administration, 2007).

Literature Review

Review of a first aid for animals book used by the American Red Cross in their training courses indicates many differences between pets and humans. Major differences of anatomy, vital signs normalcy, responses to injury, restraint methods, and appropriate first aid exists between animals and humans (Mammato, 2005).

The bulk of the literature review for this project targeted answering the first of the research questions. This decision was made early in the project work plan formation as outlined in the procedure section of this report. What legal and ethical authority does the Chesterfield Fire and EMS Department have to resuscitate animals? It became evident early in the literature review that the target of this research should be limited to domesticated animals. A definition of domestic animal is "an animal that has been housed and fed by man for generations and has little fear of man as a result. Some domestic animals learn to depend on human provision so completely that they have little ability to survive if returned to a natural habitat" (Smith, 2008).

The first domesticated animals were dogs, sheep, and cattle. These are naturally social species that readily scavenged new food sources and easily acclimated to invading human areas scrounging for food. "Archaeological records show numerous locations of long, loose associations between free-living partners before a full-fledged domesticated relationship appears" (Budiansky, 1999, p. 15).

Dogs were the first animal that became domestic. Archeological findings suggest that wolves were prevalent over much of the world over a million years ago. Therefore, as man developed, wolves were in his surrounding environment. "It is probable that by 20,000 years ago man had the dog underway and very shortly after that would undertake the herding of ruminants using dogs" (Caras, 1992, p. 18). Over the last 20 centuries, man has manipulated the species

through selective breeding. This manipulation is continued today in attempts to develop specific desirable traits of socialization, strength, hardiness, herding abilities, etc. The result so far in the domesticated dog is over 400 breed lines. Relative to North America, although the dogs of Native Americans were not domesticated as we think of, they stayed in the Indian camp and often traveled with Indian bands but subsisted on scraps and scavenging. Even so, they served the purpose of keeping down the vermin and acting as guards from intruders (Anderson, 2004).

Although many believe that man domesticated animals for his use, more recent theories suggest that it is more likely that both man and the animals chose the path. "Biologists broadly apply the term co evolution to the process whereby two species evolve in concert" (Budiansky, 1999, p. 52). In fact, many archaeologists believe that animals such as dogs and cats chose the path to domestication more so than man did. The fundamental scientific concept describes this path as an evolutionary product of a mutual strategy for survival. The theory states that over a period of centuries these animals traded the traits of fear, aggressiveness, and territoriality for the advantage of food and protection. More than survival of the fittest, domesticated animals have survived by just hanging around people.

Throughout nature cooperative relationships have evolved that help to ensure the survivability of species. It is obvious that domestication has been a cooperative venture that has benefited both man and beast. Man has used dogs for centuries for many purposes. During both war and peacetime, animals have served man in many ways. Examples of use have included pulling wheeled stretchers with wounded, police and guard dog use, and medical dogs help caregivers by pre-warning that a patient is about to experience a seizure. Dogs are even trained to warn of approaching earthquakes. A Dogs' sense of smell and hearing is much sharper than that of man's. Depending on the breed, the sight of dogs varies greatly. Some hunting breeds

have much better sight than humans, and other breeds do not see so well (Caras, 1992). Dogs now can even detect melanomas on people that are too small to be found by human doctors (Becker, 2002).

As animals have been domesticated many have become entirely dependent on man. Their bodies and their behavior have been genetically manipulated to fit into mans' environment (Hart, 1985). Some biologists argue that domesticated animals are actually degenerate forms of their ancestors. Due to selective breeding for human companion traits these animals become very weak. "All domestic animals, in both behavior and appearance, retain juvenile traits in adulthood" (Budiansky, 1999, p. 17). One Yale professor that studies animal history suggests that domesticated, animals through dependency and excess kindness from humans, have become weak and ever more dependent on the crutch of human care. Selective breeding for specific traits has resulted in physical and psychological changes rendering many breeds defenseless in the wild (Fox, Returning to Eden, 1986). "But calling them degenerates does not somehow mean they are less worthy of our consideration. If anything, their degeneracy which we had a hand in argues for an even greater responsibility on our part" (Budiansky, 1999, p. 123).

As early as 1838, the attitude toward companion animals in this country was changing from that of strictly using animals for our purposes to one of providing care. That year Lydia H. Sigourney published *Letters to Mothers* in which she advocated 3 lessons that every child should learn. Two of the lessons involve truthfulness and obeying parents. The third lesson involves being kind to all beings including animals. In the mid 1850's Harriet Beecher Stowe routinely compared animals to children in her writings. In her books, she gave animals personalities just as she did humans (Grier, 2006). Since the 1800s the attitude of caring for domestic animals in this country has continually increased. Literature indicates that we have evolved to associate our

treatment of animals with our own humanity. "Without empathy, the Golden Rule of treating other sentient beings as we would like to be treated is simply an unattainable intellectual ideal that has no meaning in the 'real' world of 'fallen' humanity" (Fox, St. Francis of Assisi, Animals, and Nature, 1989, p. 30). Also, as urban society and religious fervor took hold in many areas in the mid to late 1800's many writings surfaced that discuss human responsibilities as stewards for God's creatures.

The concept of human stewardship includes treating animals with compassion and keeping both their welfare and the welfare of their owner at a level of importance (Fox, Returning to Eden, 1986). "Since people have cared for domesticated mammals throughout history, we are constantly faced with choices regarding the quality of care we provide" (Hart, 1985, p. 350).

Our society has struggled with acceptable treatment of animals for decades. Legislation has been adopted over the years attempting to regulate the treatment of animals to fall within societal expectations. The Humane Methods of Slaughter Act of 1958 amended in 1978 demonstrates our cultures concern for the emotions and suffering of even the animals that we eat. The Marine Mammal Protection Act of 1972 set a moratorium against killing or capturing any marine mammal (Fox, Returning to Eden, 1986). The Animal Welfare Act (7 U.S.C. 2131 et seq.; passed 1966, amended 1970 and 1976) mandates humane care, treatment and handling of animals by all animal related businesses. The 1976 amendments to this act make animal fighting by anyone a federal offense (United States Department of Argiculture, 2002). Most recently the Pets Evacuation and Transportation Standards Act of 2006 mandates that every state and locality prepares to address the needs of household pets and service animals following a disaster or emergency (The White House, 2006). In addition, Commonwealth of Virginia animal protection

laws require that those responsible for the care of animals must provide "adequate care, treatment, and transportation"…as well as adequate water, feed, and shelter." (Virginia General Assembly, 2003)

Animals have helped to define societial and individual self concept. Albert Schweitzer stated: "A man is really ethical only when he obeys the constraint laid on him to help all life which he is able to succor, and when he goes out of his way to avoid injuring anything living. He does not ask how far this or that life deserves sympathy as valuable in itself or how far it is capable of feeling. To him, life as such is sacred" (Fox, Returning to Eden, 1986, p. 162). Many believe that care of those that are dependent and / or interdependent on a population creates an ethical responsibility and that humans intentionally make companion animals dependent (Brestrup, 1997). As an example, we generally target bringing puppies into our home between 8 weeks and 12 weeks of age. This timeframe ensures that the animal has socialized enough with his/her littermates to not be afraid of other dogs, and also ensures that he/she adequately attaches to and identifies with the new human family for its future (Hart, 1985). In addition, Viktor E. Frankl, the existential psychotherapist, stated, "Being human means being conscious and being responsible …. Reverence for life and for the living can give the deepest personal meaning" (Fox, Returning to Eden, 1986, p. 32). When outlining guiding principles for using animals in laboratory experiments, one biologist includes giving priority to respect, compassion and admiration for other animals as one principle. Another of his principles is "When uncertain about whether animals are feeling pain or suffering, assume that they are and act accordingly" (Bekoff, 2007, p. 25)

The pets related products industry hauls in between $4 to $6 billion annually. While ethical responsibility accounts for some of the rational for our devotion to companion animals it

alone cannot explain the amount of time and money we spend on them. Latest estimates show that 6-8 million dogs and cats enter shelters every year and 3-4 million are euthanized each year in these shelters as unwanted animals. These figures are down several million from 20 years ago, but still show an overabundance of supply vs. demand for pets in this country. This reality does not therefore demonstrate the value that we place on our pets (HSUS Pet Overpopulation Estimates).

Many writers have bolstered the animal welfare cause over the last 20 years by relating companion animal perception, memory emotions, sensations, and identity to that of human children (Brestrup, 1997). Due to variances in brain structure and function, we cannot correlate the suffering an animal experiences with that of a human. However, as we observe animals in unpleasant circumstances we note the same behaviors that humans display (Hart, 1985). We do know that "Children form powerful attachments to their pets, which in many cases can be as strong as the attachment they feel toward a parent" (Becker, 2002, p. 29) and that many families today routinely refer to their pets as their "furry children". Several pet products also use this term, obviously to benefit the product manufacture with sales (Grier, 2006).

In summary, no literature was found that directly addressed the responsibility for fire service personnel to resuscitate companion animals. However, a great deal of literature discusses the ethical responsibility that all members of our society have to care for domesticated animals in general. It is clear from a look at the United States historical trend that as our country has evolved the expectation of more compassionate treatment of domestic animals has developed. In both the written word and laws that have been instituted at all levels of government, the ethical and legal responsibility that citizens have to care for animals has been steadily increased.

The laws of supply and demand cannot explain the value that Americans place on their companion animals. So this trend has apparently been caused by a combination of other factors. Most important of these factors is the fact that most people in our society do believe that animals have emotions including the ability to feel distress and that they do physically suffer (Bekoff, 2007). Other factors include the affection that owners have for their companion animals, empathy that many people have with any suffering life form, and a sense of responsibility for lives that are dependent on humans for their survival.

Procedures

Once the research questions and method were determined for this project, a work plan was developed that laid out the information and data gathering procedures to be followed in order to address each research question (appendix A). Resources were gathered to conduct the literature review. This included numerous books, internet web pages, and lining up interviews with content experts. Just prior to embarking on this project, the Saint Francis Humane Association donated six animal oxygen masks kits to the Chesterfield Fire and EMS Department. These kits were purchased from H.E.L.P Animals Inc. located in Orange City, Florida. This association has been instrumental in equipping hundreds of fire departments in the United States and Canada with these kits (How we Distribute Masks, 2006). Several unsuccessful attempts were made to acquire a list, from H.E.L.P Animals Inc. of fire departments that have acquired the animal oxygen masks. The initial intent was to survey the departments with the mask kits to answer the research questions. Without such a list, a back up survey method was deployed. A questionnaire (appendix B) was sent out to the fire metro planners Yahoo group. From that survey attempt only two responses were received.

With only two responses, another effort to gain survey information was necessary. Therefore, numerous internet searches were conducted attempting to identify fire departments that have the mask kits. The internet search indicated that 63 departments had acquired the kits (appendix C). The same one page hardcopy questionnaire with a stamped self-return envelop was sent to each of these 63 departments. This survey process was an attempt to gain information about the last four research questions.

Interviews were conducted with three people that have expertise in specific fields of interest to this issue. Cindy Peek was interviewed on October 25, 2007. She is a Pet First Aid Instructor Trainer with the American Red Cross. She was chosen to interview in lieu of a Humane Association member due to her expertise in pet resuscitation. Doctor Stephen Larrick was interviewed on March 6, 2008. He is a veterinarian with over 20 years experience operating the Powhatan Animal Hospital in Virginia. These two interviews were designed to illicit information for the last three research questions. Both were also questioned as to their knowledge of any legal or ethical mandate to resuscitate animals. These interviews were designed to contrast or corroborate the information gathered during the literature review and to help define the best method to resuscitate animals. Doctor Allen Yee was interviewed on December 3, 2007 with several follow-up conversations during December and January. He is the Operational Medical Director for the Chesterfield Fire and EMS Department. Discussions with Doctor Yee were also designed to gain insight to the last three research questions. The questions that each interview began with are shown in appendix D.

As noted in the work plan for the project, pilot training sessions were initially planned. The three experts interviewed all stated that additional training sessions were unnecessary. Therefore, these training sessions were not conducted.

Simple instructions to use and maintain the oxygen mask kits were provided by H.E.L.P. Animals Inc. These were used in the development of the Use Maintenance and Care (UMAC) sheet that the Chesterfield Fire and EMS Department creates for all new equipment prior to placing it into service (Appendix E).

The two active EMS protocols for the treatment of humans, Difficulty Breathing and Inhalation Injuries, were studied along with the directions for use of the kits. These human protocols in conjunction with directions from the American Red Cross on performing Cardiopulmonary Resuscitation on pets (Mammato, 2005), and an animal resuscitation guide sheet developed by two New York veterinarians (Feldman, 1996) were all utilized to devise the Chesterfield Fire and EMS Animal Resuscitation EMS Protocol (appendix F). Doctor Yee consulted on each section of the new protocol and worked with the Virginia Office of Emergency Medical Services to ensure appropriateness of transportation guidance.

Along with how to use the masks, where to place them also needed to be answered. During meetings in the fall of 2007, twelve operational battalion chiefs of the CFEMS Department discussed this question, and determined the placement of the kits.

The procedures utilized for this project were limited by not having a good handle on the total population of departments that have acquired the kits. Only 63 departments out of 100s that now have the kits were identified and surveyed in this project. Therefore, it is possible that best practices including protocols, training programs, and other equipment may be in use that were not captured while gathering information for this project.

The literature review was also limited by a lack of writings about fire service history with oxygen kits for animals. These kits have only been used by the Fire Service for a short while, so literature on animal resuscitation produced by veterinarians and the Red Cross was the only such

literature located. Several news articles applauding the successful use of these kits by fire departments were located.

Results

A questionnaire was sent out to the metro-planners yahoo group. This group includes 98 planners from fire departments across the country. Only two completed surveys were returned from this initial effort. The Fairfax Virginia department advised that they had the kits and would put them on apparatus soon. At that time, they had no formal procedure for using the kits, but did plan on producing a DVD to use in training their personnel. Vancouver Fire Rescue advised they do not have the kits and have no forecast to acquire them.

Results from the mailing to 63 departments identified in an internet search as having mask kits, was slightly more productive. Of the 63 questionnaires sent to these departments (appendix C), six were returned unopened due to inaccurate mailing addresses. Twelve questionnaires were returned from this second mailing. Of these twelve two departments stated that they do not have the animal oxygen masks. In total, including responses from both survey attempts; eleven departments do have the animal oxygen mask kits. These eleven indicated that:

- None of the eleven departments have a written policy or protocol on assisting injured animals. Most indicated the practice is to help humans first and then animals if reasonable.
- All of the departments utilize only the kits and oxygen equipment on apparatus
- One department has an agreement with a local humane society. This department calls the society when an animal is in distress and the society acquires the services of a 24 hour veterinary service.

- Three of the eleven departments provided hands on training to their personnel. One department also includes an animal CPR card from the American Red Cross in the bag with the mask kits.
- One department advised that they have had the kits for two years and have used them to help save both dogs and cats resulting in great public relations.

The interviews conducted with content experts brought consistent results. None of those interviewed knew what ethical authority exists to resuscitate animals, and the laws were briefly discussed only with Ms. Peake. Ms. Peake also offered the most information relating to scene safe procedures. Her advice was to talk and move slowly around an injured animal and to not look directly in the animal's eyes. She also advised to use a restraint device with scared animals (C. Peake, personal communication, October 30, 2007). Ms. Peake and Dr. Larrick advised to lay any unresponsive animal on its right side, and all advised that the training for humans that the CFEMS Department providers already had would be adequate and easily cross over to animal care (S.A. Larrick, personal communication, March 6, 2008). These three and all CFEMS Department providers consulted agreed that no additional training was needed. The three interviewed also agreed that no additional equipment would be needed once the kits were placed on apparatus. Over a period of several weeks, Dr. Yee reviewed a proposed EMS protocol, and made some adjustments to the CPR and Transportation sections of the protocol (A. Yee, personal communication, January 8, 2008). Dr. Yee approved this new protocol in February, 2008 (appendix F).

The twelve battalion chiefs assigned to the Operations Division of the CFEMS Department discussed the kits in the fall of 2007. This group decided to place one animal oxygen mask kit on each of the five truck companies in the department. The logic for this

placement was that most of the animals resuscitated by the CFEMS Department have resulted from work at structural fires, and that truck companies located around the county, arrive fairly early at each structural fire. Given the limited number of kits available to the department, this logic held, and a kit was placed on each truck company in January of 2008. These kits were located in the main Emergency Medical Services (EMS) kit on each truck.

The one additional mask kit was used during ad hoc discussions with many members of the department and during the interviews for this project. An assistant fire marshal with the CFEMS Department has an accelerant dog as part of a Federal Bureau of Alcohol, Tobacco, and Firearms nation-wide program. This officer asked to carry the sixth kit for use in case his animal or any of the other handler's animals has a medical or traumatic respiratory emergency. In March 2008 the sixth mask kit was assigned to the assistant fire marshal for that purpose. Prior to placing the kits on the truck companies, each truck company captain was consulted. The kit was demonstrated to each of them, and each received a copy of the UMAC (appendix E) and EMS protocol for animal resuscitation (appendix F). Each truck captain agreed that he would train all of his truck company officers and firefighters and would advise of any questions or concerns. The day that the kits were placed on the truck companies, an e-mail was sent to all CFEMS Department members advising them of the equipment placement and providing each with an e-copy of the UMAC and EMS protocol. From that time, positive comments are all that have been received on the topic. All comments have indicated that no supplemental training is desired. During a check in on the equipment one month later, each truck captain continued to advise that no follow-up was necessary. In March 2008, a reminder e-mail of the equipment, the UMAC and the EMS Protocol was sent to all CFEMS Department Operations Division personnel. Again only positive comments were received in reference to the program.

Discussion

As stated in the literature review, our society currently views the care of domesticated animals as a responsibility of our citizens and government. In fact, current laws mandate such care and mandate that governments are prepared to care for them during emergencies (The White House, 2006). Our societal view of domestic animals has changed over the centuries in this country. From the American Indians co-existence with dogs, through decades of using animals to human advantage, to today's view of companion animals that many view as part of the family (Bekoff, 2007). From a societal viewpoint, Mahatma Gandhi described our responsibility to care for animals best when he said "The greatness of a nation and its moral progress can be judged by the way its animals are treated" (Mahatma Gandhi Quotes, 2006).

It is apparent from the low return of surveys from departments with mask kits that the study results disagreed with the literature reviewed. This poor return indicates that even with those departments that have acquired these kits, there is a general lack of importance associated with their use. This is somewhat understandable as many department personnel are very busy providing services to the people in their locality, and may feel that expanding their expected role to include rescuing animals is just one more burdensome role. It is possible that this shows a mindset of some that still needs to change. Some department personnel still see their job as "we put out fires". While this is part of a fire department's role, the more accurate job description is that of "we help people". Combining the demonstrated love and affection for companion animals that citizens have with the tremendous positive press that a department gains from rescuing pets, leads to the obvious conclusion that rescuing companion animals is a part of the fire service role to help people. In relation to this role, Dr. Albert Schweitzer, when referring to compassion for creatures, stated it best that "It is an intellectual sympathy rather than an

immediate compassion of the heart which carries within itself the impulse to help" (Fox, Returning to Eden, 1986, p. 188).

In relation to the equipment and protocol to be used for the animal resuscitation program, the study has shown a congruency of thought. The literature reviewed referencing veterinary, human medical, and Red Cross information indicated that the mask kits in conjunction with oxygen equipment currently on apparatus are adequate to resuscitate animals (Feldman, 1996). This was corroborated during the interviews with the subject matter experts. Also, all CFEMS Department operations personal agreed with this fact during discussions. A draft protocol was developed by adapting human protocols. This draft was also verified as appropriate during the interviews with the three subject experts.

All involved in program development agreed that the previous training to resuscitate humans would suffice, and that no additional training was needed. However, as injured animals present differently than humans and cause different safety concerns than humans, a training component on animal first aid including resuscitation should be considered (Mammato, 2005). One possible solution to this training need is to conduct the Red Cross Pet First Aid course for CFEMS Department members. At a minimum, random operational personnel should be tasked to demonstrate resuscitation of animal manikins. If these members perform proficiently, the choice to rely on previous learning and human experience would be judged adequate. If members do not demonstrate proficiency, a training component should be developed, tested for effectiveness and then delivered to all CFEMS Department Operations Division members.

The results, of this research, imply that the CFEMS Department is progressing appropriately with the emergent issue of companion animal importance in our society. By

preparing to resuscitate animals the department is meeting legal mandates of government and adhering to the expectations of the citizens.

Recommendations

The majority of this research project has now been institutionalized in the CFEMS Department. The animal resuscitation protocol (appendix F) has been adopted by the department and the oxygen animal masks have been put into place on apparatus. However, some additional recommendations are noted here.

While equipment and a protocol were put into place in the CFEMS Department for resuscitating animals, no training component was developed. The EMS protocol (appendix F) depicts animal resuscitation as a skill that CFEMS Department members are now expected to perform. Given this new expectation, the reality that animals can present differently than humans, and the nuances that exists between human resuscitation and animal resuscitation, a training component on animal resuscitation should be considered (Mammato, 2005).

The total population of departments with the animal oxygen masks was not identified during this research. If future research into this issue is conducted, either all such agencies need to be survived, or a large random sample of all fire departments should be surveyed.

Results from the survey indicate that most, if not all, other departments with the mask kits have not created a protocol for their use. Localities are now mandated to prepare for the care of animals during disasters and emergencies. There are some nuances associated with these masks that are different from human masks. The first time a provider sees one of these masks should not be during an emergency. It would neither be fair for the animal nor for the provider to be put into that circumstance. The protocol also answers questions about scene safety, animal cardiopulmonary resuscitation, and transportation issues that will assists in decision making.

Therefore, it is recommended that all departments adopt a formal protocol for animal resuscitation.

Overall, the CFEMS Department is now better prepared to assist the citizens with the needs of their pets during emergencies. Future training of first aid for animals will further this preparedness and it is therefore recommended to be conducted.

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Appendix A

WORKPLAN FOR THE CFEMS ANIMAL RESUSCIATION PROJECT: 10-18-07

1. Research Question 1(legal/ethical authority to resuscitate animals)
    a. Lit. review and law review
    b. Contrast w/ interviews with veterinarians and humane assoc.

2. Research Question 2 (what do other FDs and agencies do?)
    a. Get list of depts. with masks from H.E.L.P Animals Inc.
    b. Google Fire Department/Animal mask for stories of others
    c. Send a questionnaire to each of these agencies (100% of identified pop.)

3. Research Question 3 (elements of a policy/protocol?)
    a. FD Questionnaire to include protocol questions
    b. Request advice of what to include from veterinarians and humane assoc.
    c. Discuss issue with CFEMS OMD
    d. Explain UMAC and include in appendixes

4. Research Question 4 (what equipment is needed?)
    a. FD Questionnaire to include equipment question
    b. Ask veterinarians and humane assoc. during interviews
    c. Discuss issue with CFEMS OMD
    d. During the pilot training sessions, elicit input from providers

5. Research Question 5 (what training is needed for CFEMS providers)
    a. FD Questionnaire to include training question
    b. Ask veterinarians and humane assoc. during interviews
    c. Determine training mechanism to pilot
    d. Discuss issue with CFEMS OMD
    e. Conduct pilot training sessions – elicit input from providers
    f. Alter training package as appropriate from providers

Appendix B

As we all know, more emphasis is being placed on animal rescue since the Katrina disaster. A humane association recently donated Animal Oxygen Mask kits to the Chesterfield Fire and EMS Department (Virginia). An internet search indicates that your fire department, along with many others across the nation, has also recently acquired these kits (see http://www.helpanimalsinc.org).

In order to carry, maintain and use them wisely I am soliciting information from other departments. This information is also being used as part of a NFA Applied Research Project in the EFO program. Please fill out this short questionnaire and return it to me or forward it to a member of your department that would know about these kits.

1. Does your department have Pet Oxygen mask kits, or have plans to acquire them? (If the answer is no, answer #2 and return this form – all forms are important to my research)

2. What current policy or practice does your department follow when a pet (dog, cat, etc.) is found injured (structural fire, citizen's pet or PD K-9, etc.)?

3. If your department has or is acquiring these kits, what protocols or procedures are in place or being put into place for use of these tools?

4. If your department has or is acquiring these kits, what equipment (adjuncts) are needed to perform animal oxygenation / resuscitation?

5. If your department has or is acquiring these kits, what additional training, if any beyond EMT-B, is provided to ensure an effective animal oxygenation / resuscitation program?

Thank you very much for providing this information. I will be happy to share our EMS Protocol and user/maintenance sheet on these kits with anyone that has interest. E-mail me if you wish a copy.

Dave Bailey
Operations Battalion Chief
Chesterfield Fire and EMS
baileyd@chesterfield.gov

Appendix C:
Mailing List for Departments that have animal oxygen masks:

Camden-Wyoming Fire Department
200 East Ave. P.O. Box 186
Camden, DE 19934

Laurel Fire Department
10th Street & Railroad Ave. P. O. Box 410
Laurel, DE 19956

Wilmington Fire Department
300 North Walnut Street
Wilmington, DE 19801

Five Points Fire Company
209 S. Maryland Ave
Wilmington, DE 19804

Bethany Beach VFD
PO Box 142 215 Hollywood Street
Bethany Beach, DE 19930

El Cerrito Fire Department
10900 San Pablo Avenue,
El Cerrito, CA 94530

Kensington Fire Prevention District
217 Arlington Avenue,
Kensington, CA 94707

Shelton City Fire Department
44 Church Street,
Shelton, CT 06484

Ashland Fire Department
60 Pleasant Street,
Ashland, MA 01721

Framingham Town - Fire Department
10 Loring Drive,
Framingham, MA 01702

Lawrence-Douglas County Fire & Medical Department
746 Kentucky Street,
Lawrence, KS 66044

Lincolnshire Riverwoods Fire Protection District
855 Saunders Road
Deerfield, IL 60015

Wauconda Fire Department
109 West Liberty Street
Wauconda, IL 60084

Latrobe Fire Department
7660 South Shingle Road,
Shingle Springs, CA 95682

Lexington Fire Department
110 Park Road,
Lexington, SC 29072

Van Buren Township Volunteer Fire Department
10080 North Harmony Hickory Street,
Brazil, IN 47834

Belleville City - Fire Dept, Administrative
25 2nd Street,
Belleville, MI 48111

West Falls Volunteer Fire Company
1864 Davis Road,
West Falls, NY 14170

Appleton City Fire Department
700 North Drew Street,
Appleton, WI 54911

Fire Department - Madison City, Administration
325 West Johnson Street,
Madison, WI 53703

Fire Department - Clarendon County
219 Commerce Street,
Manning, SC 29102

Daytona Beach Fire Department
301 South Beach Street
Daytona Beach, FL 32114

Fairfield Fire Department
140 Reef Road
Fairfield, CT 0682

Fire Department-City of Danville
998 South Boston Road,
Danville, VA 24541

Fire Department of North Plainfield
263 Somerset Street
North Plainfield, NJ 07060

Fire Department of Greenville
8305 Augusta Road,
Pelzer, SC 29669

Mundelein Fire Department
1000 North Midlothian Road
Mundelein, Illinois 60060

Tri-Boro Vol. Ambulance Corp
10 High Street,
Butler, NJ 07405

Anchorage Fire Department
100 East 4th Ave.
Anchorage, AK 99501

Durham County - Fire Department
2422 Broad Street,
Durham, NC 27704

Orlando Fire Department
P.O. Box 4990
Orlando, FL 32802-4990

Charlotte Fire Department
2100 Commonwealth Avenue,
Charlotte, NC 28205

Currituck Fire Department
Hwy 158
Grandy, NC 27939

Sacramento Metropolitan Fire District
2101 Hurley Way,
Sacramento, CA 95825

Tyler Fire Department
100 W Bluff St
Woodville, TX 75979

Euless City Fire Prevention
201 North Ector Drive,
Euless, TX 76039

Rutland Town - Fire Dept
83 Center Street,
Rutland, VT 05701

Waukesha Fire Department
201 Delafield Street,
Waukesha, WI 53188

Antioch Village - Fire Dept, Station 2
700 Deep Lake Road,
Antioch, IL 60002

Fort Detrick Fire Department
810 Schreider Street,
Frederick, MD 21702

Frederick County Fire Rescue
340 Montvue Ln.
Federick, MD 21702-8214

Safety Harbor Fire Department
700 Main Street
Safety Harbor, FL 34695

Hudson Town - Fire Department
1 Municipal Drive,
Hudson, MA 01749

Seattle Fire Department
301 2nd Avenue South,
Seattle, WA 98104

Yakima County Fire District
10000 Zier Road,
Yakima, WA 98908

Forsyth County Fire Department
3000 Aviation Drive,
Winston Salem, NC 27105

Redlands City - Fire Department
Ste 12,
Redlands, CA 92373

Boise City - Fire Department
150 North Capitol Boulevard,
Boise, ID 83702

Gurnee Village - Fire Dept
6581 Dada Drive,
Waukegan, IL 60085

Boynton Beach City Fire Rescue Department
100 East Boynton Beach Boulevard
Boynton Beach, FL 33426

Loveland Fire Administration
410 East 5th Street,
Loveland, CO 80537

Madison City Fire Department
2168 Main Street,
Madison, MS 39110

Plantation Fire Department
400 NW 73 Avenue
Plantation, Florida 33317

Brockport Village Fire Department
38 Market Street,
Brockport, NY 14420

Coral Gables Fire Department
2815 Salzedo Street,
Coral Gables, FL 33134

Bloomington Fire Department
722 1st Street,
Bloomington, WI 53804

Ann Arbor Township Fire Department
4319 Goss Road,
Ann Arbor, MI 48105

Gwinnett CO Fire Department
408 Hurricane Shls,
Lawrenceville, GA 30043

Sugar Grove Township Fire Protection District
25 Municipal Drive
Sugar Grove, IL 60554

Albemarle County Volunteer Fire Departments
3827 Stony Point Road
Charlottesville, VA 22911

Charleston City - Fire Department
808 Virginia Street West,
Charleston, WV 25302

Greensboro City Fire Department
3804 Walker Avenue,
Greensboro, NC 27401

Lexington Fire Department
45 Bedford Street
Lexington, MA 02420

Appendix D

Interview Questions for Animal Resuscitation research Project:

1. Do you know what legal or ethical authority we have to attempt pet resuscitation?

2. What “scene safe” precautions should our personnel follow when attempting animal resuscitation?

3. What specific procedures should be followed to resuscitate pets?

4. What equipment is recommended to conduct animal resuscitation?

5. What training is needed for personnel that may perform animal resuscitation?

Appendix E
Animal Oxygen Mask UMAC
January 2008

ITEM: Animal Oxygen Mask (kit of 3 sizes – manufactured by McCulloch Medical)

USE: To be used whenever the incident commander deems it appropriate to oxygenate an animal or to attempt to resuscitate an animal. The kit includes 3 sizes of masks.

Each masks is to be used for this approximate weight of animal:

Small Mask –	6.6 lb. to 22 lb.
Medium Mask –	24 lb. to 55 lb.
Large Mask -	57 lb. to 172 lb.

To oxygenate a breathing animal (see EMS Protocol for more detail)

- Connect oxygen tube to animal mask and to oxygen bottle
- Set oxygen bottle to appropriate flow for animal size:
  a. Small Mask: 1 - 3 Liters per minute
  b. Medium Mask: 3 - 5 Liters per minute
  c. Large Mask: 5 - 7 Liters per minute
- Place mask onto muzzle of the animal

To resuscitate a non-breathing animal (see EMS Protocol for more detail)

- Remove the 22mm oxygen fitting and connect a bag valve mask (with appropriate oxygen flow – see above) to this device
- Place the mask onto the muzzle of the animal
- Lay the animal with trachea in-line and ventilate 12-20 times a minute
- Cover the two vents on the side of the mask during ventilations.

MAINTENANCE: One kit of masks will be carried on each Ladder Truck. A small bag containing the masks is to be carried in an EMS bag. During daily check, ensure masks bag is in place. During monthly check, perform a visual check to ensure the rubber diaphragm is not torn. No other maintenance is necessary. Should a diaphragm get ripped, replacements are readily available from SurgiVet, Master US Distributor.

CARE: Kit consists of 3 oxygen masks and an oxygen tube for each mask. If a mask is used, disinfect it by soaking it in a 1:20 bleach/water solution. If oxygen tubing is used, replace it. Once the kit, with the 3 masks is dry, place it back into the EMS bag.

SOURCE: SurgiVet website at http://www.surgivet.com/ccatalog/ccatalog46.html

SAFETY NOTE: Use extreme caution when applying or removing the mask. A conscious injured animal may bite out of fear. The mask helps to prevent this when on the animal's muzzle.

Appendix F
EMS Protocol: Animal Resuscitation

Overview:

The majority of animal related resuscitation efforts that CFEMS faces are the result of structural fires and resulting smoke inhalation and / or carbon monoxide poisoning. Suspect inhalation injury and respiratory damage in any animal with a thermal burn, and particularly if the animal has facial burns, singed nasal hair, carbonaceous sputum or was in an enclosed space. Be aware that many chemicals are present during ordinary combustion including Hydrogen Sulfide, Hydrogen Cyanide and Carbon Monoxide (CO). CO is a tasteless, odorless, colorless, and non irritating gas. Almost any flame or combustion device can produce the gas.

Pre-Hospital Goal:

Always protect providers from scene hazard exposures including animal bites or scratches. Extrication and removal from hazardous atmospheres should be done by personnel with appropriate personal protective clothing & breathing apparatus. Move the animal to a safe environment and administer 100% oxygen using the best means available. Protect the airway and assist ventilations as indicated. Working with the animal owner or county Animal Control, CFEMS providers will advocate for transport to an appropriate receiving facility as indicated for any animal presenting with altered LOC, difficulty breathing, or cardiovascular compromise.

Animal Assessment:

1. Consider the safety of CFEMS personnel and others
   Assure scene safety and understand that injured animals are usually in pain, and an animal in pain may lash out. One of the most important things you need to do before helping an injured animal is to place a muzzle on the mouth. There are several methods to muzzle an animal but never muzzle one that is vomiting, has difficulty breathing or is coughing.
2. Take Body Substance Isolation (BSI) precautions
3. Lay dossal animal on its right side
4. Assess the animal for consciousness and ABCs

General Impression

− Form a general impression of patient based on initial presentation, mechanism of injury, and/or nature of the illness

− Begin the assessment of the patient's LOC during initial patient contact. Talk to the animal first. Gently touch and attempt to awaken the pet. You could be seriously injured should you attempt to perform CPR on an animal that was only sleeping heavily and was startled awake.

Airway - Ensure that the patient has an open airway. Assist if needed with head tilt/chin lift or jaw thrust to bring the head in line with the neck. If animal remains dossal and flaccid to this point, attempt to pull the tongue straight out to ensure an open airway.

Breathing - Check adequacy of respirations / ventilation; listen to breathing, auscultate breath sounds with stethoscope.

Circulation - Check for a pulse in the groin (where the inside of the rear leg meets the abdomen). Be very careful if you check this on a conscious dog, as he/she may snap or bite. Check for obvious hemorrhage.

BLS for animal with respiration/pulse

Administer 100% Oxygen per animal assessment. Use humidified oxygen if available.

1. Select appropriate size Oxygen Mask based upon animal size (see #3 below)
2. Attach Oxygen Supply Tubing between the 22mm adaptor on top of Mask and the Oxygen Regulator

3. Select Appropriate Oxygen Flow Rate
    a. Feline Mask (Small Mask) 1 - 3 Liters per minute
    b. Small Canine Mask (Medium Mask) 3 - 5 Liters per minute
    c. Large Canine (Large Mask) 5 - 7 Liters per minute

4. Place Mask Opening over animal mouth/nose

5. Monitor Patient and restrain from running off

6. Work with pet's owner to determine disposition, or contact Animal Control for further assistance

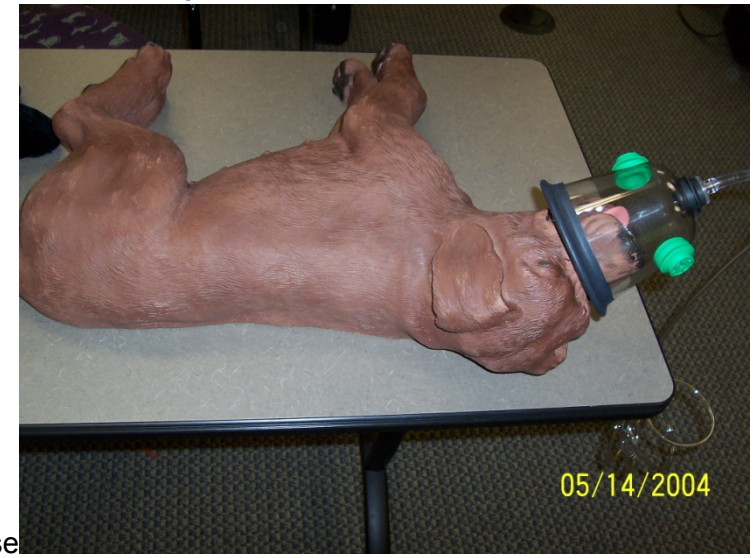
BLS for animal without respiration

1. Select appropriate size Oxygen Mask based upon animal size (see #4 below)
2. Remove the 22mm clear plastic adaptor from the black rubber sleeve on top of the mask and **Retain Adaptor for reuse!**

3. Attach Bag Valve Mask to the 22mm mask port and Oxygen supply
4. Select Appropriate Oxygen Flow Rate

   a. Feline Mask (Small Mask) 1 - 3 Liters per minute
   b. Small Canine Mask (Medium Mask) 3 - 5 Liters per minute
   c. Large Canine (Large Mask) 5 - 7 Liters per minute

5. Secure Mask Opening over animal mouth/nose

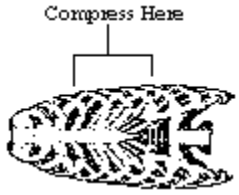


6. Block both of the green vents with finger and thumb to prevent air escape
7. Maintain head in a neutral position, and Ventilate the patient 12 - 20 times per minute watching for chest rise to ensure adequate volume
8. Monitor Patient and restrain if necessary
9. Work with pet's owner or Animal Control to determine disposition.

BLS / CPR for animal Pulseless and Apneic

1. Make sure that there are no major (pooling/spurting blood) points of bleeding. Control as necessary.

2. Lay the animal on its right side
3. Locate your hands where its left elbow touches the chest. Approximately the middle of the rib-cage.



4. Compress the chest 15 times followed by 2 rescue breaths (3 compressions every 2 seconds)

Compress approximately:

- 1/2" - small dogs / cats
- 1" - medium dogs
- 1.5" - large dogs

5. Cease resuscitation if the animal remains pulseless and apneic after 20 minutes of CPR, This is the providers decision (do not contact medical control for orders)

Transportation of viable Animal:

- If respiration and pulse return, transport in position of comfort.

  - Transportation via ambulance (non-emergency) is authorized if deemed appropriate by the OIC

  - Reassess breathing and pulse as indicated.

- If no owner of the animal is identified call animal control to assist with decisions to transport to an appropriate facility

- If an owner is identified, and wishes the animal to be transported, assist as necessary. If needed, the Veterinary Emergency Centers (24 hour care) are located at:

  - 12501 Hull Street Road (804-744-9800) near Rt. 288

  - 3312 West Cary Street (804-353-9000)